

REMARKS

Claims 1-27 were presented for examination and were pending in this application. In the latest Office Action, claims 1-27 were rejected. With this amendment, claim 10 is amended, and new claims 28-30 are added. On the basis of the following remarks, consideration of this application and allowance of all pending claims are requested.

Claims 1 and 19 were rejected as made obvious by ITU-T Recommendation G.992.3 in view of U.S. Patent Publication No. 2001/0024454 to Hasegawa et al. Claims 2-4, 7-9, 20-22, and 25-27 were rejected as made obvious by Recommendation G.992.3 and Hasegawa, as above, in further view of U.S. Patent No. 6,658,024 to Okamura. Claims 5 and 23 were rejected as made obvious by Recommendation G.992.3, Hasegawa, and Okamura, as above, in further view of U.S. Patent No. 7,050,825 to Ginesi et al. Claims 6 and 24 were rejected as made obvious by Recommendation G.992.3, Hasegawa, Okamura, and Ginesi, as above, in further view of U.S. Patent Publication No. 2004/0025101 to Okita. Claims 10-13 and 16-18 were rejected as made obvious by Hasegawa in view of Okamura and Recommendation G.992.3. Claim 14 was rejected as made obvious by Hasegawa, Okamura, and Recommendation G.992.3, as above, in further view of Ginesi. Claim 15 was rejected as made obvious by Hasegawa, Okamura, Recommendation G.992.3, and Ginesi, as above, in further view of Okita.

At the core of each of these obviousness rejections is the premise that it would have been obvious to modify Recommendation G.992.3 in view of Hasegawa. Applicants traverse these rejections because this premise is factually and legally incorrect.

Recommendation G.992.3 is discussed in this application in the Background (e.g., at ¶¶ 9-11), which explains that the cited Recommendation G.992.3 was insufficient for operation in the presence of TCM-ISDN noise. Before the CO and CPE transceivers can begin normal

communications, they first perform various initialization and setup functions that are defined Recommendation G.992.3 during a “channel discovery phase.” Towards the end of this channel discovery phase, a carrier is selected for the pilot tone; therefore, the pilot tone is not available to the transceivers throughout the channel discovery phase. Although not a problem for some environments, the lack of a pilot tone is a problem in the presence of TCM-ISDN noise because the CO and CPE transceivers must maintain a synchronized TTR clock — even during the channel discovery phase. The TTR clock allows the CO and CPE transceivers to time their communications so that they transmit only during the other’s FEXT periods, avoiding NEXT periods (when the effect of crosstalk noise is much higher). Accordingly, a fundamental problem in extending Recommendation G.992.3 to TCM-ISDN noise environments is the absence of a pilot tone during the channel discovery phase. The claimed invention addresses this problem.

In rejecting each of the claims, the examiner suggested that it would have been obvious to use the TTR indication symbol described in Hasegawa during the channel discovery period defined in Recommendation G.992.3. But this argument cannot hold. Hasegawa would not make such a modification of the channel discovery phase obvious to one of ordinary skill in the art because Hasegawa’s disclosure is relevant only to normal operation (i.e., “showtime”), after the channel discovery phase has occurred. During normal operation of the transceivers, the pilot tone has already been established; therefore, Hasegawa does not encounter the problem of how to synchronize a TTR clock without the availability of a pilot tone.

In the Office Action, the examiner suggested that applying Hasegawa’s technique to the channel discovery phase in Recommendation G.992.3 would have been obvious because it was “obvious to use a known technique to improve a similar device/method.” But this assertion misinterprets the references. Applying Hasegawa’s synchronization technique to the channel

discovery phase of Recommendation G.992.3 is not using a known technique to improve a similar device or method. In fact, Hasegawa's solution would not work in the claimed context.

Hasegawa describes a system that detects an off-synch condition and then reestablishes synchronization by correlating the data stream between the CO and CPE transceivers.

(Hasegawa, ¶ 76.) This technique would not be feasible during a channel discovery phase because it requires a data stream that does not exist during the channel discovery phase.

Accordingly, one of skill in the art would not have applied Hasegawa's technique during the channel discovery phase, as the examiner suggests, because Hasegawa's technique uses signals that are not present during the channel discovery phase.

Hasegawa is simply not relevant to the claimed subject matter, which obtains and maintains synchronization during a channel discovery phase, when the pilot tone is not available. Therefore, when presented with the problem of maintaining synchronization during a channel discovery phase, one of ordinary skill in the art would not have found Hasegawa informative. The skilled person would have read Hasegawa and seen it for what it is — a technique for synchronizing during normal (showtime) transceiver operation using the existing pilot tone.

Moreover, Hasegawa is primarily concerned with avoiding loss of the pilot tone so that initialization process need not occur. As described in ¶¶ 75 and 78, Hasegawa's synchronization technique avoids any need to reinitialize the modems. As Hasegawa explains, the technique avoids initialization so that the pilot tone will continue to be available for Hasegawa's synchronization. Therefore, Hasegawa teaches away from synchronizing during a channel discovery phase because a fundamental goal of Hasegawa is to avoid initialization (i.e., when another channel discovery phase would be performed).

To solve the problem of how to maintain synchronization during the channel discovery phase, when there is no pilot tone, one of ordinary skill would not have used a technique where a pilot tone does exist (as in Hasegawa) — especially where such a technique would not have worked during the channel discovery phase.

Each of the rejections is premised on the assertion that it would have been obvious to modify the channel discovery phase defined in Recommendation G.992.3 using Hasegawa. Because this underlying argument is flawed, claims 1-27 are patentable over the combinations of references cited in the Office Action.

New claims 28-30 have been added to recite a feature disclosed in the specification, e.g., at ¶¶ 16 and 38. In these claims, the CO transceiver transmits the TTR synchronization signal during FEXT_R periods while the CPE transceiver is transmitting messages to the CO transceiver during FEXT_C periods. This avoids drift of the CPE transceiver's TTR clock when the CPE transceiver is sending messages to the CO transceiver during the channel discovery phase, before any pilot tone has been established. None of the cited references disclose or suggest this feature.

Due to the withdrawal of the indication of allowable subject matter, the previous amendment that narrowed claim 10 has been reversed in this amendment. In view of the Federal Circuit's decision in *Hakim v. Cannon Avent Group PLC*, 81 U.S.P.Q.2d (BNA) 1900 (Fed. Cir. 2007), Applicants hereby rescind any disclaimer that may have resulted from the previous amendment. In particular, Applicants direct the examiner's attention to the prior art that was being considered on the record when the previous amendments were made and suggest that the examiner revisit that art in view of the present amendments.

Based on the foregoing, the application is in condition for allowance of all claims, and a Notice of Allowance is respectfully requested. If the examiner believes for any reason direct

contact would help advance the prosecution of this case to allowance, the examiner is encouraged to telephone the undersigned at the number given below.

Respectfully submitted,

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